

761—450.4(321) Minimum requirements for constructing and equipping specially constructed or reconstructed motorcycles. Minimum requirements for constructing and equipping specially constructed or reconstructed motorcycles as defined in Iowa Code section 321.1 are as follows:

450.4(1) Reserved.

450.4(2) Upgrade pulls—minimum speed. No motor vehicle or combination of vehicles which cannot proceed up a 3 percent grade, on dry concrete pavement, at a minimum speed of 20 miles per hour, shall be operated upon the highways of this state.

450.4(3) Engine. No two-wheeled motorcycle shall be equipped with an engine (propelling power plant) which is not of a motorcycle manufacturer's design for use on motorcycles.

450.4(4) Frame/chassis. A motorcycle frame/chassis, including the suspension components and engine mountings, shall be of sufficient strength, capable of supporting the combined weight of all vehicle components and riders for which the vehicle was designed.

450.4(5) Front end assembly.

a. Trail (extended fork measured in inches). No reconstructed or specially constructed motorcycle shall have the front fork so extended as to place the center of the front wheel axle farther than 36 inches from a vertical plane through the steering axis.

b. Rake (extended fork measured in degrees). No reconstructed or specially constructed motorcycle shall have the front fork so extended as to exceed a 45 degree angle between the fork assembly and a vertical plane through the steering axis.

c. Extensions. No reconstructed or specially constructed motorcycle shall be equipped with extension slugs. However, one-piece extension tubes and springer units, if approved, are acceptable.

d. Wheelbase. No reconstructed or specially constructed motorcycle shall have an overall wheelbase, measured from the center of the front axle to the center of the rear axle, of less than 40 inches.

e. Motorcycle front end geometry. A representation of the front end geometry of a motorcycle is depicted in the Appendix to this rule.

450.4(6) Brakes. Every motorcycle shall be equipped with at least a rear brake. If the vehicle is also equipped with a front brake, all control cables, lines and hoses shall be located and secured so as not to become pinched between the fork and frame members when the wheel is turned completely to the left or right. Brake-actuating devices shall be in a readily accessible location, unencumbered by vehicle components. A suitable mechanism shall be provided for the purpose of automatically returning the actuating devices to a normal position upon release.

450.4(7) Tires, wheels, rims. Motorcycle tires shall be of pneumatic design with a minimum width of two and twenty-five hundredths inches and designed for highway use. Wheel rim diameters shall not be less than 10 inches and rims shall otherwise comply with applicable federal standards.

450.4(8) Steering and suspension.

a. Stability. Motorcycle steering and suspension shall provide the operator with the means of safely controlling vehicle direction.

b. Wheel alignment. The rear wheel of a two-wheel motorcycle shall track behind the front wheel within 1 inch with both wheels in a vertical plane when the vehicle is operating on a straight course. On a three-wheel motorcycle, the two wheels mounted on the rear axle shall have a wheel track distance not less than 30 inches and the midpoint of the rear wheel track distance shall be within 1 inch of the front wheel track when the vehicle is proceeding on a straight course.

c. Steering head. The steering head shall be provided with a bearing or similar device that will allow the steering shaft to turn freely in rotational motion only. All handlebar-mounted control cables, wires, lines and hoses shall be located and secured so as not to become pinched between the fork and frame members when the wheel is turned completely to the right or the left.

d. Handlebars. Handlebars shall be of sturdy construction, adequate in size (length) to provide proper leverage for steering, and capable of withstanding a minimum force of 100 pounds applied to each hand grip in any direction. Handlebar grips shall be located no more than 15 inches above the occupied seat with the handlebars located in a straight ahead steering position. The handlebars shall be

capable of vertical adjustment. The handlebars shall provide a minimum distance of 18 inches between grips after final assembly.

e. Hand grips. Motorcycles shall have handlebars equipped with hand grips of nonslip design or material.

f. Suspension. Motorcycles shall be equipped with a suspension system, and the suspension system shall be applicable to at least the front wheel. The suspension system(s) shall be designed for the purpose of maximum vehicle stability.

450.4(9) Fuel system. All fuel system components, including the tank, pump, tubing, hoses, clamps, etc., shall be securely fastened to the motorcycle so as not to interfere with vehicle operation and be leakproof when the vehicle is in its normal operating attitude. Fuel lines and tank shall be positioned in a manner so as to prevent their contact with the engine head, manifold, exhaust system, or other high temperature surfaces or moving components. The fuel system shall be adequately vented and provided with a fuel shutoff valve located between the fuel supply and the engine.

450.4(10) Exhaust system. Motorcycles shall be equipped with an exhaust system incorporating a muffler or other mechanical device for the purpose of reducing engine noise. Cutouts and bypasses in the exhaust system are prohibited. The system shall be leakproof and all components shall be securely attached to the vehicle and located so as not to interfere with the operation of the motorcycle. Shielding shall be provided to prevent inadvertent contact with the exhaust system by the operator and/or passenger during normal operations.

450.4(11) Mirrors. Every motorcycle shall be equipped with at least one mirror of unit magnification, securely affixed to the handlebar and capable of adjustment within a range that will reflect an image that includes at least the horizon and the road surface to the rear of the motorcycle. The mirror shall consist of a minimum reflective surface of 10 square inches. All mirrors shall be regular in shape (circular, oval, rectangular, or square) and shall not contain sharp edges or projections capable of producing injury.

450.4(12) Fenders. The rear wheel of any reconstructed or specially constructed motorcycle shall be equipped with a fender or otherwise be covered by the body configuration. The fender shall be securely mounted and of sufficient size and strength to prevent water or other road surface substances from being thrown to the rear of the vehicle.

450.4(13) Seat or saddle. A seat or saddle securely attached to the vehicle shall be provided for the use of the operator. The seat or saddle shall not be less than 20 inches above a level road surface when measured to the lowest point on top of the seat or saddle cushion with the driver seated in a driving position. The seat or saddle adjustment locking device shall prevent relative movement of the seat from its selected and secured position under all normal vehicle operating conditions.

450.4(14) Horn. Every motorcycle shall be equipped with at least one horn. The horn shall be electrically operated and shall operate from a control device located on the handlebar. When operated the horn shall be audible for at least 200 feet.

450.4(15) Speedometer and odometer. Every motorcycle shall be equipped with a properly operating speedometer and odometer calibrated in miles per hour and miles respectively and shall be fully illuminated when the headlamp(s) is(are) activated.

450.4(16) Lighting equipment. Every motorcycle and motorized bicycle shall be equipped with at least one headlamp but not more than two, mounted securely. Headlamp(s) shall be mounted not less than 24 inches, nor more than 54 inches, above the level road surface. A headlight beam indicator light shall be located within the operator's field of vision and illuminated automatically when the high beam of the headlamp is actuated. Every motorcycle shall be equipped with a tail and brake light assembly and a license plate light. All original lamps and lighting equipment provided on the motor vehicle by the manufacturer shall be maintained in working condition or shall be replaced with equivalent equipment.

450.4(17) Footrest. Two footrests, one on each side of the vehicle, shall be provided for each designated seating position. Footrests shall be located so as to provide reasonable accessibility. Footrests shall be able to fold upward if they protrude beyond the side of the motorcycle's fixed items.

450.4(18) Highway bars. If a motorcycle is so equipped, highway bars (alternate footrests) shall be located at a maximum distance of 26 inches from the foot controls and shall not interfere with the operation of the foot controls.

This rule is intended to implement Iowa Code section 321.23.